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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,413	05/16/2005	Kenneth Sundberg	PR/3-23156/A/RAI 56/PCT	4017
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EXAMINER				
CORDRAY, DENNIS R				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/517,413

Applicant(s)

SUNDBERG ET AL.

Examiner

DENNIS CORDRAY

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1.5 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1.5 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/6/2008 has been entered.

Response to Arguments

Applicant's amendments filed 10/6/2008 have failed to overcome the rejections over the cited prior art.

Applicant's arguments have been fully considered but they are not persuasive.

Applicant's arguments regarding the trends in the data provided in the Declaration submitted 4/7/2008 are convincing. The data in Tables 1, 2 and 3 show that pure ASA (having no olefin or polymeric residue impurities) performs better than ASA having significant percentages of the impurities. In addition, the data in Tables 4 and 5, along with accompanying Figures 1 and 2, show generally improvement in Cobb values with decreasing percentages of olefins and/or polymeric residues. The data in the instant Specification show improved properties for pure ASA over ASA having about 4.4% olefins and about 7.2% polymeric residues.

Regarding the showing of unexpected results, the arguments of counsel on pp 6-8 cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145

USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). The data compare properties for pure ASA over ASA having a level of olefins and polymeric residue much higher than the claimed invention. The showing fails to demonstrate any unexpected changes in the properties of the ASA composition or paper treated therewith in the vicinity of the claimed limits of polymeric residues or olefins, thus are not convincing with respect to the critical claimed range.

As discussed in the prior Final Office Action dated 6/26/2008, the prior art teaches that the adverse effects of residual polymer in ASA used for paper sizing and the desirability of reducing the amount thereof are well known in the art and have been addressed by many inventors. In addition, the prior art teaches that removing unreacted anhydride, olefins and at least some other impurities from reacted ASA compositions by distillation is a typical practiced. The motivation to use a purified ASA product is thus established. As Applicant has previously argued, the cost of obtaining the purified product is also a factor. Fakoukakis et al offers a method of making ASA that does not produce significant amounts of residual polymers and only requires the already practiced distillation step of removing unreacted materials (col 2, lines 13-44), thus provides a highly purified product having impurity levels in accordance with the claimed invention without a costly step to remove the polymer residue. Given the desirability of minimizing the amount of polymers in the ASA as generally known in the art, why would it not have been obvious to one of ordinary skill in the art to use the

highly purified ASA as taught by Fakoukakis et al, which does not require a costly step of removing polymers, to reduce the known adverse effects of residual polymers?

Absent convincing evidence of unobvious advantages therefrom, one of ordinary skill in the art would have known of the above disclosures and of the desire generally known in the art to reduce the amount of residual polymer in ASA, and would have been motivated to use the ASA of Fakoukakis as an economical and very high purity product.

The rejections are maintained but have been amended to include the additional support of Shin et al, which was introduced in a previous response to arguments.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 as amended recites a limitation to the method of Claim 5 further comprising a stabilizer. It is not clear how the stabilizer is incorporated into the method. Is the stabilizer added with the sizing agent or separately therefrom? Or is another kind of stabilizer and/or use thereof intended?

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 5 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tansley et al (5626719) in view of Fakoukakis et al (4956478) and further in view of Frohlich et al (5969011), Sonoda et al and Shin et al (5021169).

Claims 1, 5, 10-12 and 20: Tansley et al discloses a sized liquid packaging paper or board, wherein the sizing agent comprising alkenyl succinic anhydride, or ASA is added to the aqueous pulp slurry (Abstract; col 4, lines 23-26; col 5, lines 55-60). The board is coated on both sides with polyethylene (barrier coating of a food grade material) (col 1, lines 12-18; col 3, line 25). Tansley et al discloses a method for producing a carton comprising forming a sized paper or board, treating with hot hydrogen peroxide (sterilizing), then forming a packaging unit (carton) from the board (col 3, lines 3-28). The sizing agent is provided as an aqueous dispersion (col 3, lines 19 and 20).

Tansley et al does not disclose the polymeric residues or olefin content of the ASA.

Fakoukakis et al discloses a method for making a nearly pure ASA (Abstract; col 4, lines 23-26). While the polymeric residues and olefin content of the nearly pure ASA are not disclosed, examples are given of a product comprising about 99% ASA (col 5, lines 33-36; col 6, lines 1-3), thus having a maximum combined content of polymer residues and olefins of about one percent. Fakoukakis et al also discloses that the alkenyl succinic anhydrides have substantially no polymeric residue contamination (col

2, lines 13-20; claim 1). Substantially no polymeric residue is interpreted as a level low enough not to have any impact on the structure or performance of the product. The alkenyl succinic anhydrides of Fakoukakis et al are thus substantially the same as those of the instant invention. Fakoukakis discloses that the method is a simpler, more efficient and more economical process for producing nearly pure ASA.

Fakoukakis et al does not recite the use of the ASA as a sizing agent. However, ASA is a well known cellulose reactive size used in papermaking, as taught by Frohlich et al (col 1, lines 10-16).

Sonoda et al teaches the use of ASA for multiple purposes, such as a sizing agent, resin former, plasticizer, lubricant additive and rust inhibitor, which include many of the uses recited by Fakoukakis et al but with the inclusion of a sizing agent (p 2, lines 3-4). Sonoda et al also teaches that the usual methods of making ASA result in byproducts of a tar substance and a high molecular weight polymer, which result in insufficient quality of the product. Sonoda et al further teaches that a high-purity product is required for an information recording material (which the Examiner construes as meaning a paper) and that numerous proposals have been made for obtaining high purity product with fewer byproducts (p 2, last 3 pars).

Shin et al teaches that the adverse effects of residual polymers on the color and performance of ASA in paper sizing and the desirability of reducing the amount of polymeric products are known in the art. Shin et al also teaches that many attempts have been made to inhibit the formation of polymers in ASA (col 1, lines 10-50 and col 4, lines 45-49).

The art of Tansley et al, Fakoukakis et al, Frohlich et al, Sonoda et al, Shin et al and the instant invention are analogous as pertaining to the use of ASA. Frohlich and Tansley et al teach the use of ASA in a paper. Fakoukakis et al teaches a method for producing high-purity ASA (at least about 99% pure). Sonoda et al and Shin et al teach the desirability of reducing the residual polymer content and obtaining a high purity in ASA for paper sizing. One of ordinary skill in the art would have found a product containing nearly pure ASA and 0.5% or less of polymer residues and/or olefins to be an obvious embodiment over the disclosure of Fakoukakis et al. It would have been obvious to one of ordinary skill in the art to use the claimed ASA in the paper of Tansley et al or in any paper in view of Fakoukakis et al and further in view of Frohlich et al, Sonoda et al and Shin et al as a well known economical sizing agent having a low level of unwanted by-products.

Claim 13: Fakoukakis et al teaches that the products can be used in many instances without further purification (col 2, lines 13-20; col 3, lines 20-23), thus implicitly discloses that further purification is possible. With the motivation, as taught by Sonoda et al and Shin et al, to obtain a high-purity ASA sizing agent, it would have been obvious to one of ordinary skill in the art to further purify the product of Fakoukakis et al by removing as much of the polymeric residues as possible.

Claims 14-16: The paper of Tansley et al sized with the aqueous ASA dispersion of Fakoukakis et al would have been obvious for reasons given above. Obtaining the claimed properties of color and rate of hydrolysis in the aqueous ASA dispersion would also have been obvious because, where the claimed and prior art apparatus or product

are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 17-19: Tansley et al discloses that the preparation of stable dispersions comprising the cellulose reactive size, including the choice of conventional stabilizers and dispersing agents, falls within the competence of those skilled in the art. The preferred stabilizer is a cationic starch (col 4, lines 16-22). Frohlich et al teaches that paper sizes based on cellulose reactive sizing agents (ASA and AKD) are generally provided in the form of dispersions comprising a high molecular weight cationic polymer, cationic starch, polyamine or polyamideamine (col 1, lines 1-25). Applicant also teaches that cationic starch, cationic polyacrylamide and other cationic polymers are stabilizers well known in the art for sizing compositions using ASA (p 5, 3rd par). It would thus have been obvious to one of ordinary skill in the art to use the conventional stabilizers with high purity ASA to make a paper sizing dispersion and to have a reasonable expectation of success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791